

Salinity/Selenium

Se

Sources

- Natural
- Mining
 - Coal
 - Phosphate
 - Minerals
 - Uranium
- Coal-fired power plants
- Irrigation
- Refining crude oil


Effects

Human Health

- Kidney & liver damage
- Nervous & circulatory systems
- Fatigue & irritability
- Hair and fingernail loss
- Dermatologic lesions

Aquatic Life

- Reproductive
- Birth deformities
- Growth
- Skeletal deformities



Uses = electronic, photographic emulsions, glass, pigments, rubber, metal alloys, textiles, petroleum, medical therapeutic agents



Sediment

Sources

- Agriculture
 - Grazing
- Construction sites
- Logged areas
- Mined areas
- Hydrologic modification
- Recreation
- Urban runoff
 - Pavement
 - Buildings

Effects

- Aquatic habitat degradation
 - Reduced light penetration
 - Temperature changes
 - Excessive bottom deposits
- Algal blooms







Metals

Sources

- Mining
- Road building
- Land development
- Atmospheric deposition

Effects

- Adhere to sediment
- Accumulate
 - Bottom sediments
 - Plant & animal tissue
- Exposed to toxins
 - Fish consumption
 - Recreation



Metals impair more stream miles than any other pollutant in Arizona



Pesticides

Sources

- Residential property
- Commercial property
- Farmland

Effects

- Death of the organism
- Cancers, tumors & lesions on fish & animals
- Reproductive
- Immune system
- Endocrine
- Cellular and DNA damage
- Teratogenic effects
- Intergenerational effects



Chemical and biological substances intended to control pests, such as insects, weeds, bacteria, and algae

Working together to protect the Colorado River

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Nitrogen

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Sources

- Fertilizers
- Animal waste
- Failing septic systems
- Pet waste

Effects

- Humans
 - Blue baby syndrome
 - Respiratory ailments
 - Heart disease
 - Cancer
 - Restricted recreation
- Aquatic Life
 - Decreased oxygen
 - Photosynthesis prohibited
 - Fish kills
 - Algal blooms
 - Temperature changes
 - Excessive bottom deposits



"Blue baby syndrome" Blood lacks the ability to carry sufficient oxygen to individual body cells

Chromium VI

CrVI

Sources

- Steel & pulp mill discharge
- PG&E plume

Effects

- Human Health
 - Allergic dermatitis
 - Cancer





PG&E Topock Compressor Station: Plume Update

- February 14, 2005 **354 ppb Cr⁶⁺** in alluvial aquifer above bedrock - 60 ft west of the river and below the Colorado River
- Concentration increased to **417 ppb** in the next sampling round
- Preferential flow paths may exist in groundwater
- Eastern edge of the plume is undefined north of I-40
- March 2005, ADEQ announced the **Topock Groundwater Study** to assess Arizona groundwater resources for possible impact from PG&E plume

Wells Selected for Topock Groundwater Study



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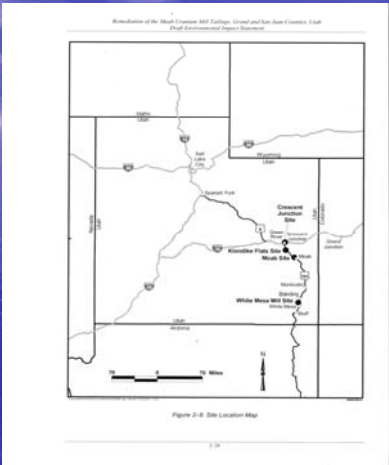
Uranium

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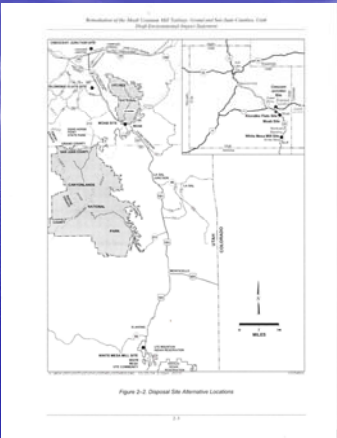
- Sources
 - Mining
 - Natural
- Effects
 - Human Health
 - Cancer
 - Kidney



- Moab Uranium Mill Tailings near Moab, UT



- Disposal site alternative
 - Crescent Junction
 - Klondike Flats
 - White Mesa Mill Site



A Step In The Right Direction

- DOE to relocate a 12-million-ton pile (130 acres) of uranium tailings
- "Preferred alternative" involves moving the tailings pile
- Remove threat to both groundwater and the Colorado River
- Pollutants of concern: uranium, ammonia, radon, arsenic and other metals

Perchlorate



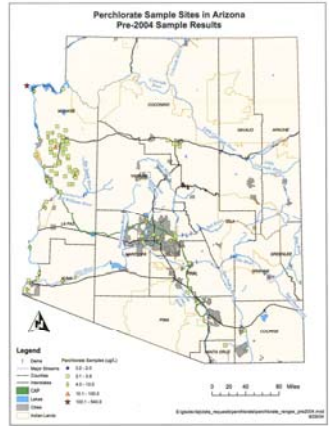
- Sources
 - Rocket fuel
 - Industrial uses
 - Matches
 - Flares
 - Pyrotechnics
 - Ordnance
 - Explosives



- Effects
 - Thyroid hormone
 - Prenatal & postnatal growth
 - Metabolism
 - Mental function

Primary ingredient in solid propellant used rockets, missiles, and fireworks

- Results from perchlorate monitoring conducted prior to 2004



- Results from multi-agency perchlorate sampling in 2004



Bacteria

- Sources
 - Domestic sewage
 - Human waste
 - Animal waste
- Effects
 - Human Health
 - Typhoid fever
 - Dysentery
 - Cholera
 - Viral & bacterial gastroenteritis
 - Hepatitis A



We All Live Downstream



Protect River for Basic Needs



Recreation



Agriculture



Drinking Water



Fish & Wildlife



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